

Request - Tom Delaval

Access DB# 142438

## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sabrina Daga Examiner #: 74141 Date: 12/11/05  
Art Unit: 1616 Phone Number 202-206-2000 Serial Number: 10/724,103  
Mail Box and Bldg/Room Location: 4C70 Rm 4A45 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Phenanthrene Compds  
Inventors (please provide full names): Chi-Sheen Tuan et al.

Earliest Priority Filing Date: 2/6/04

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Cl 1-11

Please search for phenanthrene  
compds of formula(1) in cl 1.

Please see attached sheet

Thank you

| STAFF USE ONLY              |                | Type of Search  | Vendors and cost where applicable                 |
|-----------------------------|----------------|-----------------|---|
| Searcher:                   | <u>Tom</u>     | NA Sequence (#) | STN <input checked="" type="checkbox"/>           |
| Searcher Phone #            | <u>22504</u>   | AA Sequence (#) | Dialog  |
| Searcher Location:          |                | Structure (#)   | Questel/Orbit <input checked="" type="checkbox"/> |
| Date Searcher Picked Up     | <u>1/13/05</u> | Bibliographic   | Dr.Link   |
| Date Completed:             | <u>1/13/05</u> | Litigation      | Lexis/Nexis                                       |
| Searcher Prep & Review Time |                | Fulltext        | Sequence Systems                                  |
| Overall Prep Time:          | <u>10</u>      | Patent Family   | WWW/Internet                                      |
| Online Time                 | <u>120</u>     | Other           | Other (specify)                                   |

=> fil reg  
FILE 'REGISTRY' ENTERED AT 11:42:59 ON 13 JAN 2005  
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Property values tagged with IC are from the ZIC/VINITI data file  
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STRUCTURE FILE UPDATES: 11 JAN 2005 HIGHEST RN 811782-89-5  
DICTIONARY FILE UPDATES: 11 JAN 2005 HIGHEST RN 811782-89-5

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

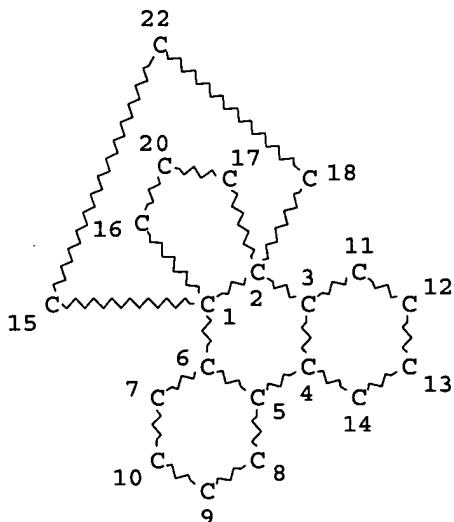
Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more  
information enter HELP PROP at an arrow prompt in the file or refer  
to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> d sta que 119  
L14 STR



NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 20

STEREO ATTRIBUTES: NONE  
L16 22 SEA FILE=REGISTRY SSS FUL L14  
L17 13 SEA FILE=REGISTRY ABB=ON PLU=ON L16 AND 5/NR  
L18 13 SEA FILE=REGISTRY ABB=ON PLU=ON L16 AND C5-C5-C6-C6-C6/ES  
L19 13 SEA FILE=REGISTRY ABB=ON PLU=ON (L17 OR L18)

=> d his

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 SET COST OFF

FILE 'HCAPLUS' ENTERED AT 11:24:51 ON 13 JAN 2005

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 L1 7 S E4,E14  
 E TSAI Z/AU  
 L2 1 S E15  
 E HSU S/AU  
 L3 191 S E3,E19,E20,E24,E25  
 E CHENG H/AU  
 L4 227 S E3,E4  
 E CHENG HAN/AU  
 L5 4 S E3,E4  
 E CHENG Y/AU  
 L6 189 S E3,E8  
 E CHENG YU/AU  
 L7 96 S E3,E23  
 E CHENG YUFEN/AU  
 L8 8 S E3  
 E CHANG S/AU  
 L9 453 S E3,E19,E20  
 E CHANG CSHINN/AU  
 E CHANG SHINN/AU  
 L10 30 S E5  
 L11 0 S L1-L10 AND ?PHENATHREN?

FILE 'REGISTRY' ENTERED AT 11:29:21 ON 13 JAN 2005

L12 STR  
 L13 0 S L12  
 L14 STR L12  
 L15 2 S L14  
 L16 22 S L14 FUL  
 SAV L16 QAZI774/A  
 L17 13 S L16 AND 5/NR  
 L18 13 S L16 AND C5-C5-C6-C6-C6/ES  
 L19 13 S L17,L18  
 L20 9 S L16 NOT L19

FILE 'HCAOLD' ENTERED AT 11:42:13 ON 13 JAN 2005

L21 0 S L19

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L22 4 S L19  
 L23 0 S L22 AND L1-L10

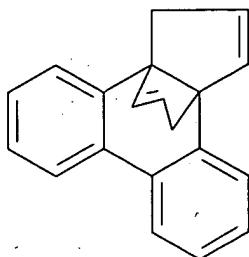
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L24 0 S L19

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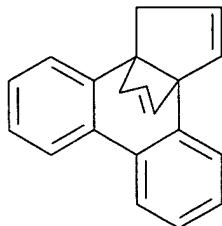
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L19 ANSWER 1 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 632325-31-6 REGISTRY  
 CN 11b,3a-Propeno-1H-cyclopenta[1]phenanthrene (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C20 H16  
 CI RPS  
 SR CA Index Guide or Ring Systems Handbook

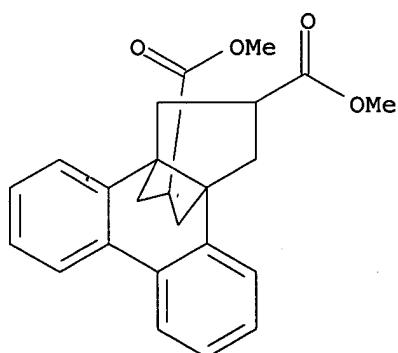


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L19 ANSWER 2 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 629643-94-3 REGISTRY  
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 FS 3D CONCORD  
 MF C20 H16  
 CI RPS  
 SR CA Index Guide or Ring Systems Handbook



L19 ANSWER 3 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 626201-13-6 REGISTRY  
 CN 3a,11b-Propano-1H-cyclopenta[1]phenanthrene-2,13-dicarboxylic acid,  
 2,3-dihydro-, dimethyl ester, stereoisomer (9CI) (CA INDEX NAME)  
 MF C24 H24 O4  
 SR CA  
 LC STN Files: CA, CAPLUS, CASREACT  
 DT.CA CAplus document type: Journal  
 RL.NP Roles from non-patents: PREP (Preparation); PRP (Properties); RACT  
 (Reactant or reagent)

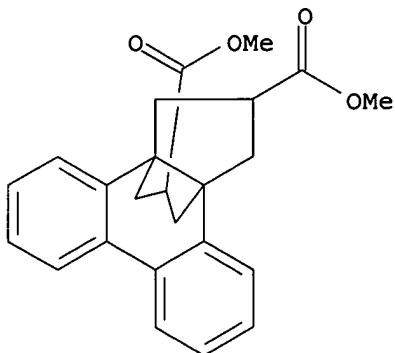


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1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:395638

L19 ANSWER 4 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 626201-12-5 REGISTRY  
 CN 3a,11b-Propano-1H-cyclopenta[1]phenanthrene-2,13-dicarboxylic acid,  
 2,3-dihydro-, dimethyl ester, stereoisomer (9CI) (CA INDEX NAME)  
 MF C24 H24 O4  
 SR CA  
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 DT.CA CAplus document type: Journal  
 RL.NP Roles from non-patents: PREP (Preparation); RACT (Reactant or reagent)

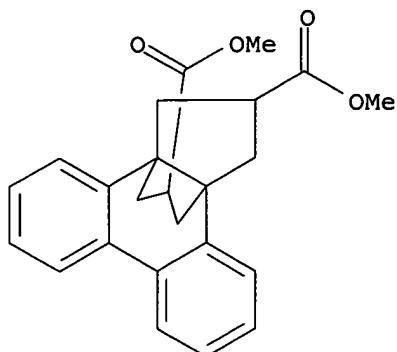


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1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:395638

L19 ANSWER 5 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 626201-11-4 REGISTRY  
 CN 3a,11b-Propano-1H-cyclopenta[1]phenanthrene-2,13-dicarboxylic acid,  
 2,3-dihydro-, dimethyl ester, stereoisomer (9CI) (CA INDEX NAME)  
 MF C24 H24 O4  
 SR CA  
 LC STN Files: CA, CAPLUS, CASREACT  
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 RL.NP Roles from non-patents: PREP (Preparation); PRP (Properties); RACT  
 (Reactant or reagent)

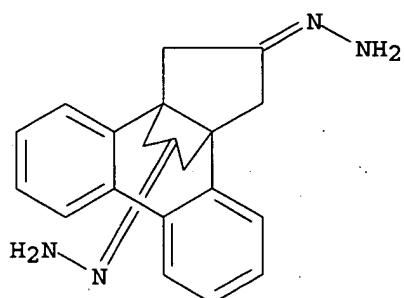


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REFERENCE 1: 139:395638

L19 ANSWER 6 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 626201-10-3 REGISTRY  
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 MF C20 H20 N4  
 SR CA  
 LC STN Files: CA, CAPLUS, CASREACT  
 DT.CA CAplus document type: Journal  
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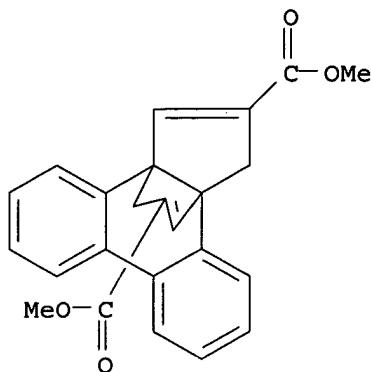
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L19 ANSWER 7 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 625834-87-9 REGISTRY  
 CN 11b,3a-Propeno-1H-cyclopenta[1]phenanthrene-2,13-dicarboxylic acid, dimethyl ester (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C24 H20 O4  
 SR CA

LC STN Files: CA, CAPLUS, CASREACT  
 DT.CA Caplus document type: Journal  
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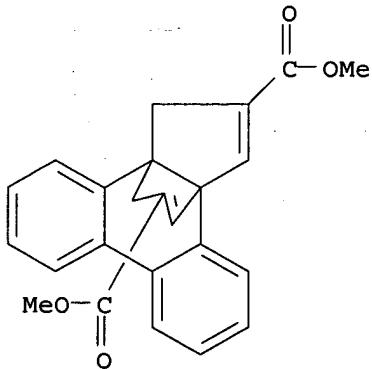


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L19 ANSWER 8 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 625834-86-8 REGISTRY  
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 dimethyl ester (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C24 H20 O4  
 SR CA  
 LC STN Files: CA, CAPLUS, CASREACT  
 DT.CA Caplus document type: Journal  
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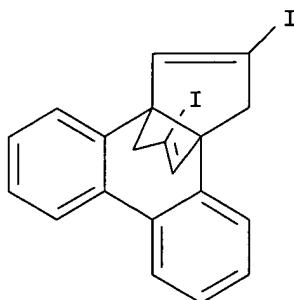


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 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:395638

L19 ANSWER 9 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 625834-85-7 REGISTRY  
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 NAME)  
 FS 3D CONCORD  
 MF C20 H14 I2  
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 DT.CA CAplus document type: Journal  
 RL.NP Roles from non-patents: PREP (Preparation); RACT (Reactant or reagent)

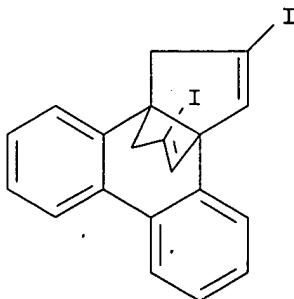


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1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:395638

L19 ANSWER 10 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 625834-84-6 REGISTRY  
 CN 3a,11b-Propeno-1H-cyclopenta[1]phenanthrene, 2,13-diodo- (9CI) (CA INDEX  
 NAME)  
 FS 3D CONCORD  
 MF C20 H14 I2  
 SR CA  
 LC STN Files: CA, CAPLUS, CASREACT  
 DT.CA CAplus document type: Journal  
 RL.NP Roles from non-patents: PREP (Preparation); RACT (Reactant or reagent)

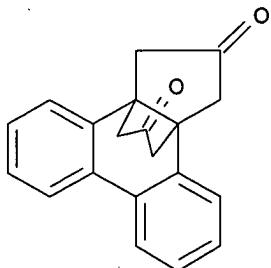


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1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:395638

L19 ANSWER 11 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 164530-72-7 REGISTRY  
 CN 3a,11b-Propano-1H-cyclopenta[1]phenanthrene-2,13(3H)-dione (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C20 H16 O2  
 SR CA  
 LC STN Files: CA, CAPLUS, CASREACT  
 DT.CA CAplus document type: Journal  
 RL.NP Roles from non-patents: PREP (Preparation); RACT (Reactant or reagent)



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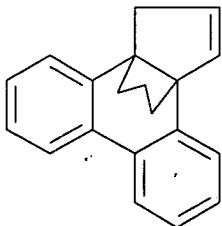
3 REFERENCES IN FILE CA (1907 TO DATE)  
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:395638

REFERENCE 2: 128:114621

REFERENCE 3: 123:55418

L19 ANSWER 12 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN  
 RN 98881-53-9 REGISTRY  
 CN 3a,11b-Propano-1H-cyclopenta[1]phenanthrene (9CI) (CA INDEX NAME)  
 FS 3D CONCORD  
 MF C20 H18  
 CI RPS  
 SR CA Index Guide or Ring Systems Handbook

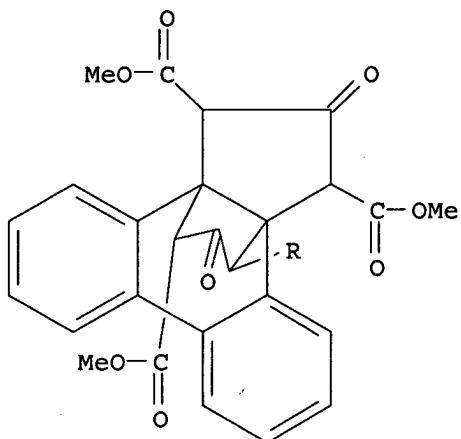


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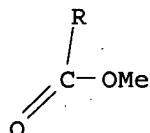
L19 ANSWER 13 OF 13 REGISTRY COPYRIGHT 2005 ACS on STN

RN 98405-92-6 REGISTRY  
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 acid, 2,3-dihydro-2,13-dioxo-, tetramethyl ester (9CI) (CA INDEX NAME)  
 MF C28 H24 O10  
 SR CA  
 LC STN Files: BEILSTEIN\*, CA, CAPLUS, CASREACT  
 (\*File contains numerically searchable property data)  
 DT.CA Cplus document type: Journal  
 RL.NP Roles from non-patents: PREP (Preparation)

PAGE 1-A



PAGE 2-A



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2 REFERENCES IN FILE CA (1907 TO DATE)  
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 128:114621

REFERENCE 2: 103:141178

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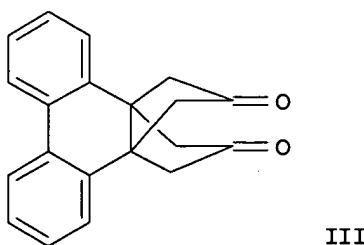
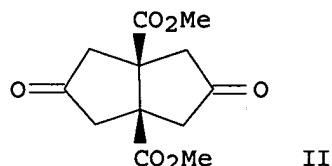
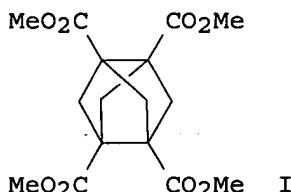
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FILE COVERS 1907 - 13 Jan 2005 VOL 142 ISS 3  
FILE LAST UPDATED: 12 Jan 2005 (20050112/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d all hitstr tot 122

L22 ANSWER 1 OF 4 HCPLUS COPYRIGHT 2005 ACS on STN  
AN 2003:784844 HCPLUS  
DN 139:395638  
ED Entered STN: 08 Oct 2003  
TI Alternative Syntheses of the New D2d Symmetric Tetramethyl Tricyclo[3.3.0.0<sup>3,7</sup>]octane-1,3,5,7-tetracarboxylate  
AU Ayats, Carles; Camps, Pelayo; Duque, Maria D.; Font-Bardia, Merce; Munoz, M. Rosa; Solans, Xavier; Vazquez, Santiago  
CS Laboratori de Quimica Farmaceutica (Unitat Associada al CSIC), Facultat de Farmacia, Universitat de Barcelona, Barcelona, E-08028, Spain  
SO Journal of Organic Chemistry (2003), 68(22), 8715-8718  
CODEN: JOCEAH; ISSN: 0022-3263  
PB American Chemical Society  
DT Journal  
LA English  
CC 24-8 (Alicyclic Compounds)  
Section cross-reference(s): 75  
OS CASREACT 139:395638  
GI



AB Two alternative syntheses of the new D2d sym. tetra-Me tricyclo[3.3.0.0<sup>3,7</sup>]octane-1,3,5,7-tetracarboxylate I from the known di-Me 3,7-dioxo-cis-bicyclo[3.3.0]octane-1,5-dicarboxylate II and 1,5-(2,2'-biphenylene)-cis-bicyclo[3.3.0]octane-3,7-dione III are described.

ST tricyclooctanetetracarboxylate prepn crystal structure;  
 bicyclooctanedicarboxylate precursor tricyclooctanetetracarboxylate;  
 bicyclooctanedione biphenylene precursor tricyclooctanetetracarboxylate

IT Molecular structure  
 (of tetra-Me tricyclooctanetetracarboxylate,  
 (phenylene)bicyclooctanedicarboxylates, and bicyclooctanedicarboxylate)

IT Crystal structure  
 (of tetramethyltricyclooctanetetracarboxylate,  
 (phenylene)bicyclooctanedicarboxylates, and bicyclooctanedicarboxylate)

IT Esters, preparation  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (polycyclic; alternative preps. of tricyclooctanetetracarboxylate from  
 (dioxo)bicyclooctanedicarboxylate or from (phenylene)bicyclooctanedione  
 )

IT 625834-82-4P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (12alternative preps. of tricyclooctanetetracarboxylate from  
 (dioxo)bicyclooctanedicarboxylate or from (phenylene)bicyclooctanedione  
 )

IT 625834-92-6P  
 RL: BYP (Byproduct); PREP (Preparation)  
 (alternative preps. of tricyclooctanetetracarboxylate from  
 (dioxo)bicyclooctanedicarboxylate or from (phenylene)bicyclooctanedione  
 )

IT 91758-62-2 **164530-72-7**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (alternative preps. of tricyclooctanetetracarboxylate from  
 (dioxo)bicyclooctanedicarboxylate or from (phenylene)bicyclooctanedione  
 )

IT 625834-83-5P **625834-84-6P 625834-85-7P**  
**625834-86-8P 625834-87-9P 625834-88-0P 625834-89-1P**  
**625834-90-4P 625834-91-5P 626201-10-3P 626201-12-5P**  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (alternative preps. of tricyclooctanetetracarboxylate from  
 (dioxo)bicyclooctanedicarboxylate or from (phenylene)bicyclooctanedione  
 )

IT 50854-51-8  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (alternative preps. of tricyclooctanetetracarboxylate from  
 (dioxo)bicyclooctanedicarboxylate or from (phenylene)bicyclooctanedione  
 )

IT 625834-93-7P **626201-11-4P 626201-13-6P**  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (crystal structure; alternative preps. of  
 tricyclooctanetetracarboxylate from (dioxo)bicyclooctanedicarboxylate  
 or from (phenylene)bicyclooctanedione)

IT 625834-81-3P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (crystal structure; alternative preps. of  
 tricyclooctanetetracarboxylate from (dioxo)bicyclooctanedicarboxylate  
 or from (phenylene)bicyclooctanedione)

IT 37595-74-7, N-Phenyltriflimide  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (ketone sulfonylation; alternative preps. of  
 tricyclooctanetetracarboxylate from (dioxo)bicyclooctanedicarboxylate  
 or from (phenylene)bicyclooctanedione)

RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Adcock, J; J Org Chem 1996, V61, P1975 HCPLUS
- (2) Barton, D; Organic Syntheses 1998, VIX, P147

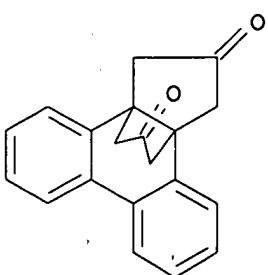
(3) Barton, D; Tetrahedron 1988, V44, P147 HCPLUS  
 (4) Borzyk, O; Pure Appl Chem 1996, V68, P233 HCPLUS  
 (5) Camps, P; Angew Chem, Int Ed 2003, V42, P4049 HCPLUS  
 (6) Camps, P; Angew Chem, Int Ed Engl 1995, V34, P912 HCPLUS  
 (7) Camps, P; Can J Chem 1984, V62, P1184 HCPLUS  
 (8) Camps, P; Chem Ber 1988, V121, P647 HCPLUS  
 (9) Camps, P; J Org Chem 2001, V66, P5366 HCPLUS  
 (10) Camps, P; Org Lett 2000, V2, P4225 HCPLUS  
 (11) Camps, P; Synth Commun 1995, V25, P1287 HCPLUS  
 (12) Camps, P; Tetrahedron 1998, V54, P4679 HCPLUS  
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 (14) Camps, P; Tetrahedron 2001, V57, P8511 HCPLUS  
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IT 164530-72-7

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (alternative preps. of tricyclooctanetetracarboxylate from  
 (dioxo)bicyclooctanedicarboxylate or from (phenylene)bicyclooctanedione  
 )

RN 164530-72-7 HCPLUS

CN 3a,11b-Propano-1H-cyclopenta[1]phenanthrene-2,13(3H)-dione (9CI) (CA  
 INDEX NAME)



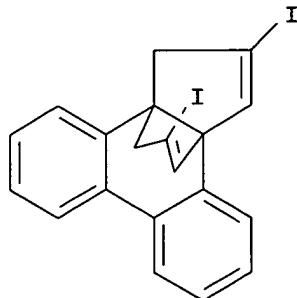
IT 625834-84-6P 625834-85-7P 625834-86-8P

625834-87-9P 626201-10-3P 626201-12-5P

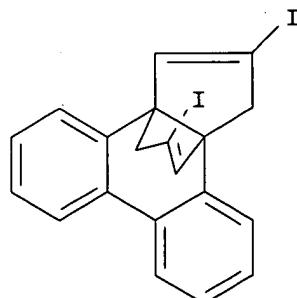
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)

(alternative preps. of tricyclooctanetetracarboxylate from  
 (dioxo)bicyclooctanedicarboxylate or from (phenylene)bicyclooctanedione

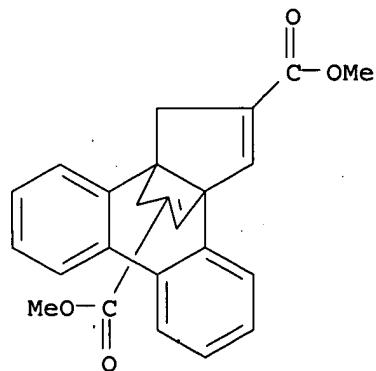
)  
 RN 625834-84-6 HCAPLUS  
 CN 3a,11b-Propeno-1H-cyclopenta[1]phenanthrene, 2,13-diido- (9CI) (CA INDEX  
 NAME)



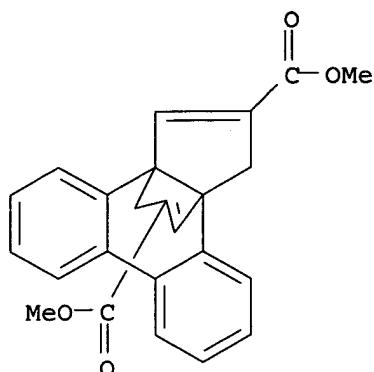
RN 625834-85-7 HCAPLUS  
 CN 11b,3a-Propeno-1H-cyclopenta[1]phenanthrene, 2,13-diido- (9CI) (CA INDEX  
 NAME)



RN 625834-86-8 HCAPLUS  
 CN 3a,11b-Propeno-1H-cyclopenta[1]phenanthrene-2,13-dicarboxylic acid,  
 dimethyl ester (9CI) (CA INDEX NAME)

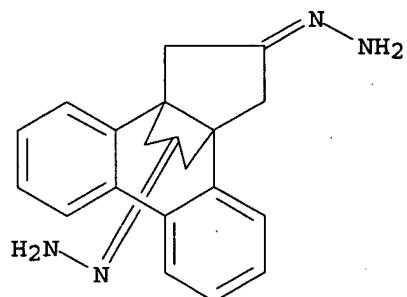


RN 625834-87-9 HCAPLUS  
 CN 11b,3a-Propeno-1H-cyclopenta[1]phenanthrene-2,13-dicarboxylic acid,  
 dimethyl ester (9CI) (CA INDEX NAME)



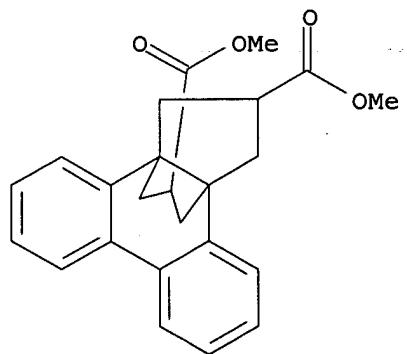
RN 626201-10-3 HCPLUS

CN 3a,11b-Propeno-1H-cyclopenta[1]phenanthrene-2,13(3H)-dione, dihydrazone, stereoisomer (9CI) (CA INDEX NAME)



RN 626201-12-5 HCPLUS

CN 3a,11b-Propeno-1H-cyclopenta[1]phenanthrene-2,13-dicarboxylic acid, 2,3-dihydro-, dimethyl ester, stereoisomer (9CI) (CA INDEX NAME)

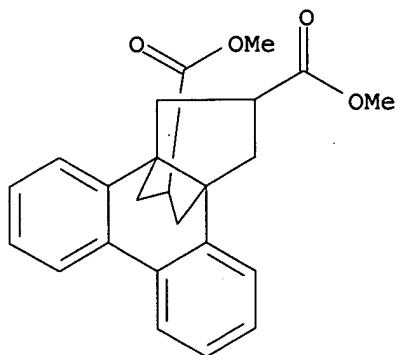


IT 626201-11-4P 626201-13-6P

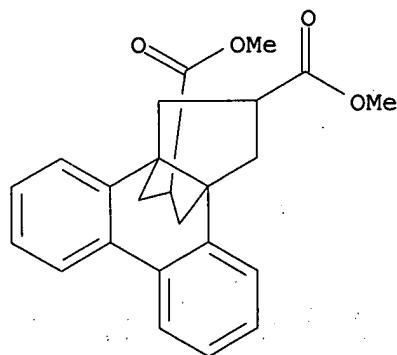
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (crystal structure; alternative prepn. of  
 tricyclooctanetetracarboxylate from (dioxo)bicyclooctanedicarboxylate  
 or from (phenylene)bicyclooctanedione)

RN 626201-11-4 HCPLUS

CN 3a,11b-Propeno-1H-cyclopenta[1]phenanthrene-2,13(3H)-dione, 2,3-dihydro-, dimethyl ester, stereoisomer (9CI) (CA INDEX NAME)



RN 626201-13-6 HCPLUS

CN 3a,11b-Propano-1H-cyclopenta[1]phenanthrene-2,13-dicarboxylic acid,  
2,3-dihydro-, dimethyl ester, stereoisomer (9CI) (CA INDEX NAME)

L22 ANSWER 2 OF 4 HCPLUS COPYRIGHT 2005 ACS on STN

AN 1997:764120 HCPLUS

DN 128:114621

ED Entered STN: 08 Dec 1997

TI Steric and electronic effects on the Weiss reaction. Isolation of 1:1  
adducts

AU Van Ornum, Scott G.; Li, Jin; Kubiak, Greg G.; Cook, James M.

CS Department of Chemistry, University of Wisconsin-Milwaukee, Milwaukee, WI,  
53201, USASO Journal of the Chemical Society, Perkin Transactions 1: Organic and  
Bio-Organic Chemistry (1997), (22), 3471-3478

CODEN: JCPRB4; ISSN: 0300-922X

PB Royal Society of Chemistry

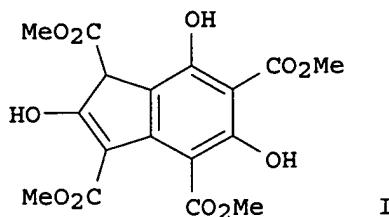
DT Journal

LA English

CC 22-5 (Physical Organic Chemistry)

OS CASREACT 128:114621

GI



AB The mechanism of the Weiss reaction was studied with respect to the intermediacy of 4-hydroxy-2-cyclopenten-1-ones (1:1 adducts) in this process. Anal. of these expts. provides addnl. evidence that 4-hydroxycyclopentenones are indeed key intermediates in the Weiss reaction. Based on the reaction of (MeO<sub>2</sub>CCH<sub>2</sub>)<sub>2</sub>CO with benzil, pyridil, thenil, furil and phenanthrenequinone, steric effects play a major role in the overall success of this condensation to provide substituted cis-bicyclo[3.3.0]octane-3,7-diones. Moreover, a trihydroxyindene [5.6] system (I) was isolated for the 1st time under Weiss conditions, providing addnl. support for the existence of cyclopentenone intermediates in this process.

ST Weiss cyclocondensation steric electronic effect

IT Cyclocondensation reaction  
(Weiss; steric and electronic effects on the Weiss reaction and isolation of 1:1 adducts)

IT Aldol condensation  
Inductive effect  
Michael reaction  
Steric effects  
(steric and electronic effects on the Weiss reaction and isolation of 1:1 adducts)

IT 84-11-7, Phenanthrenequinone 134-81-6, Benzil 492-73-9, 2,2'-Pyridil 492-94-4, 2,2'-Furil 579-07-7, 1-Phenylpropane-1,2-dione 951-88-2, 1,2-Dicyclohexylethane-1,2-dione 1074-12-0, Phenylglyoxal 1830-54-2, Dimethyl 3-oxoglutarate 3400-45-1, Cyclopantanecarboxylic acid 7333-07-5, Ethanodione, di-2-thienyl 201550-76-7 201595-00-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(steric and electronic effects on the Weiss reaction and isolation of 1:1 adducts)

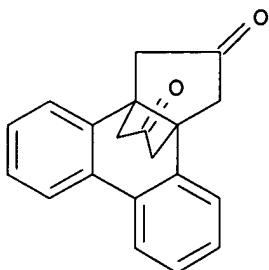
IT 5453-85-0P, Ethyl cyclopantanecarboxylate 15940-92-8P,  
1,2-Dicyclopentylethane-1,2-dione 201550-75-6P 201550-77-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(steric and electronic effects on the Weiss reaction and isolation of 1:1 adducts)

IT 16344-53-9P 16344-55-1P 16451-08-4P 16691-78-4P 80344-70-3P  
98405-92-6P 164530-72-7P 201550-74-5P 201550-78-9P  
201550-79-0P 201550-80-3P 201550-81-4P 201594-98-1P 201594-99-2P  
201595-01-9P 201595-02-0P 201595-03-1P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(steric and electronic effects on the Weiss reaction and isolation of 1:1 adducts)

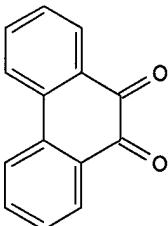
IT 98405-92-6P 164530-72-7P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(steric and electronic effects on the Weiss reaction and isolation of 1:1 adducts)

RN 98405-92-6 HCPLUS

CN 3a,11b-Propeno-1H-cyclopenta[1]phenanthrene-1,3,12,14-tetracarboxylic acid, 2,3-dihydro-2,13-dioxo-, tetramethyl ester (9CI) (CA INDEX NAME)



L22 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1985:541178 HCAPLUS  
 DN 103:141178  
 ED Entered STN: 01 Nov 1985  
 TI Studies on the reaction of 1,2-dicarbonyl compounds with dimethyl 3-ketoglutarate. Steric and electronic effects  
 AU Kubiak, G.; Cook, J. M.; Weiss, U.  
 CS Dep. Chem., Univ. Wisconsin, Milwaukee, WI, 53201, USA  
 SO Tetrahedron Letters (1985), 26(18), 2163-6  
 CODEN: TELEAY; ISSN: 0040-4039  
 DT Journal  
 LA English  
 CC 22-5 (Physical Organic Chemistry)  
 OS CASREACT 103:141178  
 GI



II

AB The steric and electronic effects of R on the cyclocondensation of RCOCOR (I; R = Ph, 2-furyl, 2-thienyl, cyclohexyl) or phenanthrenequinone (II) with (MeO<sub>2</sub>CCH<sub>2</sub>)<sub>2</sub>C:O (III) is examined. The reaction of I and III to give the oxocyclopentanols IV or the bicyclooctanedione V, from 1:2 I (R = 2-furyl)-III, shows that steric effects are dominant in these reactions. <sup>13</sup>C NMR of the reaction intermediates supports this conclusion.  
 ST steric effect cyclocondensation oxoglutarate; benzil cyclocondensation oxoglutarate; furanil cyclocondensation oxoglutarate; thienil cyclocondensation oxoglutarate; phenanthrenequinone cyclocondensation oxoglutarate  
 IT Nuclear magnetic resonance (carbon-13, of benzil, its analogs, and related aldehydes)  
 IT Steric effect (in cyclocondensation of di-Me oxoglutarate with benzil and related diketone)  
 IT Substituent effect (in cyclocondensation of di-Me oxoglutarate with benzil and related diketones)  
 IT Cyclocondensation reaction (of benzil and related diketones with di-Me oxoglutarate, substituent effect on)

IT 134-81-6 492-94-4 951-88-2 7333-07-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (cyclocondensation of, with di-Me oxoglutarate)

IT 1830-54-2  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (cyclocondensation reaction of, with benzil and related diketones)

IT 84-11-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (cyclocondensation reaction of, with di-Me oxoglutarate)

IT 60428-17-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and cyclocondensation of, with di-Me oxoglutarate)

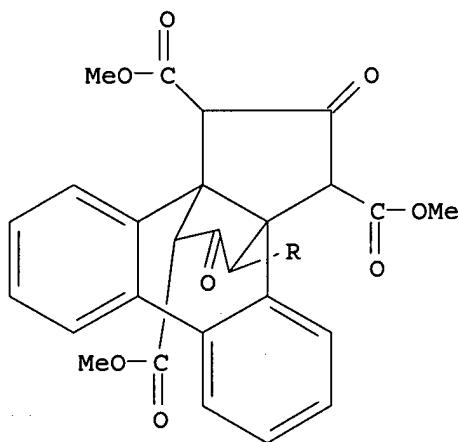
IT 16344-53-9P 16344-55-1P 16691-78-4P 80344-70-3P 88131-23-1P  
**98405-92-6P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

IT **98405-92-6P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

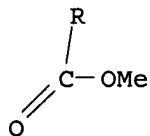
RN 98405-92-6 HCAPLUS

CN 3a,11b-Propano-1H-cyclopenta[1]phenanthrene-1,3,12,14-tetracarboxylic  
 acid, 2,3-dihydro-2,13-dioxo-, tetramethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

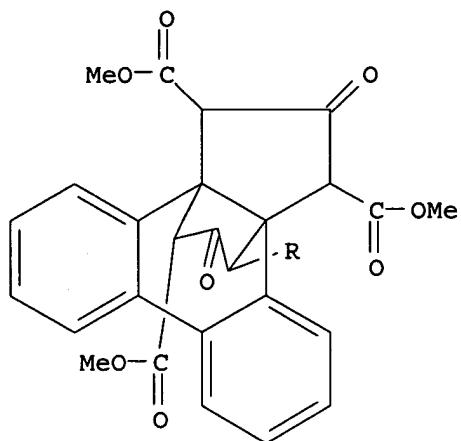


PAGE 2-A

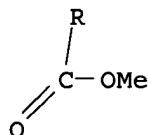


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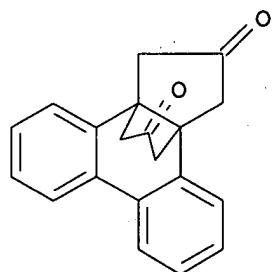
PAGE 1-A



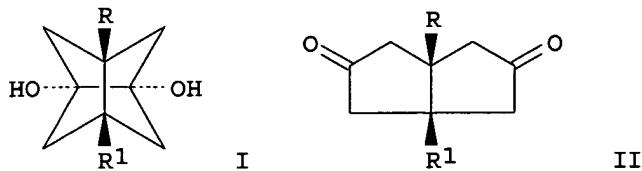
PAGE 2-A



RN 164530-72-7 HCAPLUS  
 CN 3a,11b-Propeno-1H-cyclopenta[1]phenanthrene-2,13(3H)-dione (9CI) (CA  
 INDEX NAME)



L22 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1995:512496 HCAPLUS  
 DN 123:55418  
 ED Entered STN: 27 Apr 1995  
 TI Inexpensive synthesis of 3,7-disubstituted tricyclo[3.3.0.0<sup>3,7</sup>]octane-1,5-diols  
 AU Camps, Pelayo; Estiarte, Maria Angeles; Vazquez, Santiago; Perez, Francesc  
 CS Fac. Farmacia, Univ. Barcelona, Barcelona, E-08028, Spain  
 SO Synthetic Communications (1995), 25(9), 1287-93  
 CODEN: SYNCV; ISSN: 0039-7911  
 PB Dekker  
 DT Journal  
 LA English  
 CC 24-8 (Alicyclic Compounds)  
 Section cross-reference(s): 25  
 OS CASREACT 123:55418  
 GI



|    |   |              |              |
|----|---|--------------|--------------|
| AB | A synthesis of 3,7-disubstituted tricyclo[3.3.0.03,7]octane-1,5-diols, I (e.g., R = R1 = Me, 69% yield), by intramol. pinacol reduction of cis-1,5-disubstituted bicyclo[3.3.0]octane-3,7-diones, II, with low valent titanium species, is described.                             |              |              |
| ST | tricyclooctanediol; intramol pinacol redn bicyclooctanedione  |              |              |
| IT | Reduction<br>(intramol. pinacol; synthesis of 3,7-disubstituted tricyclo[3.3.0.03,7]octane-1,5-diols via intramol. pinacol reduction of cis-1,5-disubstituted bicyclo[3.3.0]octane-3,7-diones)  |              |              |
| IT | Glycols, preparation<br>RL: SPN (Synthetic preparation); PREP (Preparation)<br>(synthesis of 3,7-disubstituted tricyclo[3.3.0.03,7]octane-1,5-diols via intramol. pinacol reduction of cis-1,5-disubstituted bicyclo[3.3.0]octane-3,7-diones)                                     |              |              |
| IT | Ketones, reactions<br>RL: RCT (Reactant); RACT (Reactant or reagent)<br>(di-, synthesis of 3,7-disubstituted tricyclo[3.3.0.03,7]octane-1,5-diols via intramol. pinacol reduction of cis-1,5-disubstituted bicyclo[3.3.0]octane-3,7-diones)                                       |              |              |
| IT | 21170-08-1  | 51716-63-3   | 91758-62-2   |
| IT | RL: RCT (Reactant); RACT (Reactant or reagent)<br>(failed reaction; synthesis of 3,7-disubstituted tricyclo[3.3.0.03,7]octane-1,5-diols via intramol. pinacol reduction of cis-1,5-disubstituted bicyclo[3.3.0]octane-3,7-diones)   |              |              |
| IT | 21170-10-5  | 21301-38-2   | 164530-71-6  |
| IT | RL: RCT (Reactant); RACT (Reactant or reagent)<br>(synthesis of 3,7-disubstituted tricyclo[3.3.0.03,7]octane-1,5-diols via intramol. pinacol reduction of cis-1,5-disubstituted bicyclo[3.3.0]octane-3,7-diones)  |              |              |
| IT | 164530-72-7P<br>RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)<br>(synthesis of 3,7-disubstituted tricyclo[3.3.0.03,7]octane-1,5-diols via intramol. pinacol reduction of cis-1,5-disubstituted bicyclo[3.3.0]octane-3,7-diones) |              |              |
| IT | 134881-45-1P  | 164530-73-8P | 164530-74-9P |
| IT | 164530-75-0P<br>RL: SPN (Synthetic preparation); PREP (Preparation)<br>(synthesis of 3,7-disubstituted tricyclo[3.3.0.03,7]octane-1,5-diols via intramol. pinacol reduction of cis-1,5-disubstituted bicyclo[3.3.0]octane-3,7-diones)   |              |              |
| IT | 164530-72-7P<br>RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)<br>(synthesis of 3,7-disubstituted tricyclo[3.3.0.03,7]octane-1,5-diols via intramol. pinacol reduction of cis-1,5-disubstituted bicyclo[3.3.0]octane-3,7-diones) |              |              |
| RN | 164530-72-7   | HCAPLUS      |              |
| CN | 3a,11b-Propano-1H-cyclopenta[1]phenanthrene-2,13(3H)-dione (9CI) (CA INDEX NAME)  |              |              |